

REMARKS

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested. Claims 65-74 are in this case. Claims 69 and 71 have now been cancelled. Claims 65-66, 68, 70, 73 and 74 have now been amended. New claims 75-88 have now been added.

35 U.S.C. § 112, First Paragraph, Rejections

The Examiner has rejected claims 65-74 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, has possession of the claimed invention. The Examiner's rejections are respectfully traversed. Claims 65 and 70 have now been amended. New claim 81 has now been added.

In the interest of expediting prosecution in this case, claims 65 and 70 and new independent claim 81 now recite, "at least 2 and no more than 20 monosaccharide units each being naturally occurring" thus clearly defining the nature and size of the carbohydrate structures of the library of the present invention.

In view of the above arguments and claim amendments, Applicant believes to have overcome the 35 U.S.C. § 112, first paragraph, rejections.

35 U.S.C. § 112, Second Paragraph, Rejections

The Examiner has rejected claims 65-74 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner's rejections are respectfully traversed. Claims 69 and 71 have now been cancelled. Claims 65, 66, 68, 70, 73 and 74 have now been amended. New claim 79 has now been added.

The Examiner points out that the phrase "complex carbohydrate" is relative and undefined. The phrase complex carbohydrate has now been replaced with the term carbohydrate throughout the claims as agreed upon with the Examiner in the interview conducted March 9, 2004.

The Examiner further argues that the phrase "naturally occurring" is vague and indefinite. Applicant would like to point out that this phrase is defined throughout the specification. In addition, the specification provides several examples of naturally

occurring carbohydrates (some of which are listed in new claims 75, 77 and 85). Support for these monosaccharides can be found throughout the instant specification, the table below provides page and table reference for each such monosaccharide.

Monosaccharide	Page (Table)
2,6 di-sulfo D-mannose	72
2-sulfo D-mannose	72
4-sulfo L-fucose	71
6-sulfo D-mannose	72
L-Aceric acid	12 (table 4)
D-Apiose	12 (table 4)
L-Arabinose	12 (table 4)
D-Fructose	12 (table 4)
L-Fucose	12 (table 4)
D-Galactose	12 (table 4)
D-Galacturonic acid	12 (table 4)
D-Glucose	12 (table 4)
D-Glucuronic acid	12 (table 4)
D-Mannose	12 (table 4)
D-N-Acetyl Neuraminic acid	25 (Table 5)
D-N-Acetylgalactosamine	12 (table 4)
L-Rhamnose	12 (table 4)
D-Sialic acid	88
D-Xylose	12 (table 4)

* The non-Lcloir pathway employs additional monosaccharides, such as anionic or sulfated sugars which are also found in mammalian cells (page 12 below table 3)

In view of these claim amendments, Applicant believes to have overcome the 35 U.S.C. § 112, second paragraph, rejections.

35 U.S.C. § 102(b) Rejections - Fodor et al.

The Examiner has rejected claim 65, 68-69 under 35 U.S.C. § 102(b) as being anticipated by Fodor et al. (U.S. Pat. No. 5,424,186). The Examiner's rejections are respectfully traversed. Claims 65 and 70 have now been amended. New claim 81 has now been added.

As was conveyed to the Examiner in the interview conducted March 9, 2004 the linker structure, which is described in claim 70 of the instant application, was not

described or suggested by Fodor et al., thus rendering this claim clearly patentable over Fodor et al.

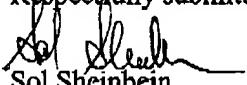
With respect to New claims 65 and 81, Applicant would like to point out that although Fodor et al. mention the application of enzymes in carbohydrate synthesis, the teachings of U.S. Pat. No. 5,424,186 clearly focus on photo-activatable chemical synthesis and as such, no clear description or suggestion of complete synthesis of polysaccharides using enzymatic approaches is set forth in this document.

As is well known in the art, enzymatic synthesis of polymers has several advantages over the widely utilized chemical synthesis approaches. One important advantage, especially when constructing polymer arrays is the ability to carefully control the synthesis reaction and synthesize a polymer of a predetermined structure and stereo-specificity. Uniform and specific branching and stereo-specificity are vital when such carbohydrates are utilized for screening, since binding of biomolecules or drug candidates to such carbohydrates can be affected by such features.

Since enzymatic reactions are highly specific both in branching patterns and stereo-specificity, a resultant carbohydrate population synthesized using such an approach is uniform in both structure and stereo-specificity as opposed to the racemic mixture of carbohydrates of various branching patterns and stereospecificity that would result from chemical synthesis or a combined chemical-enzymatic synthesis.

Thus, structural and stereo-specificity limitations of claims 65 and 70 and new claim 81 can only be attributed to a carbohydrate library which was fully synthesized using carefully planned enzymatic synthesis steps and thus clearly distinct these claims from Fodor et al.

In view of the above amendments and remarks it is respectfully submitted that New claims 65-68, 70, 72-84 and 85 are now in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

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Date: May 13, 2004

Encl.:

One month extension fees